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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,097	04/19/2004	Richard N. Codos	010758-9012-00	1465

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EXAMINER

TRAN, LY T

ART UNIT PAPER NUMBER

2853

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/827,097

Applicant(s)

CODOS, RICHARD N.

Examiner

Ly T. TRAN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,9,12,27,31,32,34-40 and 45-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 36,37 and 46 is/are allowed.
- 6) ☒ Claim(s) 1,9,12,27,31,32,34,35,38-40 and 45, 47-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                                                    |                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                               | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/6/06, 2/14/06</u> | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 9, 12 13, 27, 31, 34, 35, 39, 40, 48, 50-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cleary (USPN 6,616,355) in view of Cleary (USPN 6,457,823) and Jackson (New cold-curing high performance UV system).

With respect to claims 1, 9, 12 14, 27, 28, 31, 34, 35, 39, 40, Cleary et al. discloses:

- Substrate support defining a substrate supporting plane (fig.2A: element 22)
- At least one ink jet print head on the carriage (Fig.2A: element 16, 17)

With respect to claims 1 and 27, 28, 31, Cleary et al. discloses an apparatus and a method of ink jet printing with UV curable ink on a substrate comprising:

- Moving a print head carriage having an ink jet print head thereon approximately parallel to a substrate (Fig.2A)
- Jetting ink from the heads across the predetermined distance onto the surface of the substrate (Column 6: line 1-9)

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- A vacuum source to apply a vacuum to the substrate to help maintain a distance between the substrate and a print head (Column 3: line 50-55)

However, Cleary fails to teach at least one UV curing head on the carriage sufficiently close to the ink jet print head and the UV curing head being configured to emit sufficient UV energy to cure the ink jetted onto the substrate, at least partially cure, a substrate formed of such a material.

Cleary (823) teaches at least one UV curing head on the carriage sufficiently close to the ink jet print head and the UV curing head being configured to emit sufficient UV energy to cure the ink jetted onto the substrate, at least partially cure, a substrate formed of such a material (Abstract)

Cleary (355) does not specifically teach a print head track extending parallel to the plane having a print head carriage moveable, while cleary (823) teaches print heads (17) are transversely moveable across the frame (16) and may be moveable on the frame under the power of a transverse drive (31), it would have been obvious to one having skill in the art to have a print head track in order to move the print head.

Cleary (823) controller is operate to activate the UV curing head and the UV curing head is moveable relative to the plane and maintain focus of UV light from the printhead on ink jetted onto the surface of the substrate (Fig.2A).

However, Cleary fails to teach cold UV curing head and cold UV includes a limited bandwidth UV source, a reflector and a fluid cooling system and power consumption of at least 200 watts per linear inch.

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Jackson teaches using cold UV to curing ink (page 8), reflector and cooling system (page 8, figure 1), and power consumption of at least 200 watts per linear inch (Page 8: column 3). Since Jackson teaches using the cold UV to cure the ink, the substrate have to deform as it move in direction of print head and since the combination teach the UV cold, the same UV light would achieve the same effect such as to freeze the ink on the surface of the substrate without impinging radiation that would materially deform the substrate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made as modify to use cold UV as taught as Jackson. The motivation of doing so is to improve product quality.

2. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cleary (USPN 6,616,355)) in view of Cleary (USPN 6,457,823) and Anon (Taming UV temperature).

With respect to claim 45, Cleary (355) et al. discloses:

- Moving a print head carriage having an ink jet print head thereon approximately parallel to a substrate (Fig.2A)
- Substrate support defining a substrate supporting plane (fig.2A: element 22).

However, Cleary (355) fails to teach UV curing head on the carriage and the power consumption of at least 125 watts per linear inch.

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Cleary (823) teaches UV curing head on the carriage to direct UV energy toward the substrate (Column 4: line 3-10).

Anon teach the power consumption of at least 125 watts per linear inch (page 19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the power consumption of at least 125 watts per linear inch as taught by Anon. The motivation of doing is to obtain more economy curing.

3. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cleary (USPN 6,616,355) in view of Cleary (USPN 6,457,823) and Anon (Taming UV temperature) as applied to claim 45 above, further in view of Jackson (New cold-curing high performance UV system).

Cleary (823) teaches two lamps, one n each side of the print head (Column 4: line 3-10).

However, the combination of cleary (355), cleary (823) and Anon fails to teach emit light of at least 200 watts per linear inch.

Jackson teaches power consumption of at least 200 watts per linear inch (Page 8: column 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made as modify to have the power consumption as taught by Jackson. The motivation of doing so is to improve product quality.

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4. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cleary (USPN 6,616,355) in view of Cleary (USPN 6,457,823) and Jackson (New cold-curing high performance UV system) as applied to claim 31 above, further in view of Pelletier (USPN 5,447,758).

Cleary disclose the claimed invention except that printing on the substrate such that printing on the paper instead of cardboard. Pelletier shows that paper and cardboard is an equivalent structure known in the art. Therefore, because paper and cardboard were art recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute cardboard for paper for the same purpose such as using as a printing medium.

#### **Allowable Subject Matter**

5. Claims 36, 37 and 46 are allowed.

#### **Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ly T. TRAN whose telephone number is 571-272-2155. The examiner can normally be reached on M-F (7:30am-5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LT

May 12, 2006

 5/15/06  
**MANISH S. SHAH**  
**PRIMARY EXAMINER**